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Frank

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(54) **DIGITAL DETECTOR**

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(57) **ABSTRACT**

The present disclosure provides a digital detector apparatus for use with a sensor unit is provided wherein the sensor unit includes an emitter device and a receiver device, the receiver device having a capacitance. The digital detector apparatus comprises at least a first input port, first output port, and a second output port; and an A/D converter circuit wherein an input of the A/D converter circuit is coupled to the first input port for receiving an output of the receiver device; wherein the first output port of the digital detector apparatus is coupled for charging and discharging the capacitance of the receiver device; the second output port of the digital detector apparatus is coupled for driving the emitter device; and the A/D converter circuit derives a sensor output value from the output of the receiver device during a number of charging and discharging cycles. A digital smoke detector and a method of generating an output signal in a digital detector are also provided.

17 Claims, 11 Drawing Sheets

